IBM RDX Removable Disk Backup Solution

IBM System x at-a-glance guide

The new IBM RDX removable disk backup solution is designed to reliably and cost-effectively help protect your business's valuable assets. It uses a rugged removable disk cartridge and docking station to provide an easy-to-use, highly secure, fast and portable answer to your data protection needs.

The IBM RDX Internal and External USB removable disk drives are shown in Figure 1.

Figure 1. IBM RDX internal and external USB drives

Did you know?

IBM RDX features high-capacity shock-resistant 160 GB, 320 GB, and 500 GB cartridges, making your storage options extremely flexible. Each is ruggedized to withstand a drop from up to 0.9 meters (36 in.) without damage. The RDX USB docking stations are offered in external stand-alone as well as internal 5.25-inch half height units to seamlessly integrate into your System x or BladeCenter S environment. The USB interface ensures a simple installation, while providing high performance with sustained transfer rates of up to 90 GB per hour.

The standard Yosemite Backup Basic with Disaster Recovery for IBM RDX application provides a wizard-based management approach to backup and recovery. The software includes advanced functionality such as bare metal disaster recovery and cartridge encryption features.

Part number information

Table 1. Ordering part numbers and feature codes

Description	Part number	Feature code
IBM RDX160 Internal USB bundle (carrier/dock + 160 GB cartridge)	46C5364	Not applicable
IBM RDX320 Internal USB bundle (carrier/dock + 320 GB cartridge)	46C5387	Not applicable
IBM RDX500 Internal USB bundle (carrier/dock + 500 GB cartridge)	46C5388	Not applicable
IBM RDX160 External USB bundle (carrier/dock + 160 GB cartridge)	362516X	Not applicable
IBM RDX320 External USB bundle (carrier/dock + 320 GB cartridge)	362532X	Not applicable
IBM RDX500 External USB bundle (carrier/dock + 500 GB cartridge)	362550X	Not applicable
IBM RDX internal carrier/dock only	Not available	5710
IBM RDX 160 GB Cartridge	46C5366	5707
IBM RDX 320 GB Cartridge	46C5367	5708
IBM RDX 500 GB Cartridge	46C5368	5709

The part numbers for the IBM RDX Internal USB Bundle include the following items:

- One internal carrier/dock (drive) to fit into a 5.25" HH bay
- One cartridge (either 160 GB, 320 GB, or 500 GB capacity)
- Documentation CD
- Software CD
- Four USB cables for internal tape connectivity:
  - 14-inch USB cable with type 2x3 connector x3200 and x3200 M2
  - 28-inch USB cable with type B connector for x3400 and x3500
  - 12.5-inch USB cable with type 1x6 connector x3650 and x3655
  - 40-inch USB cable with type A locking connector for x3400 M2, x3500 M2, x3650 M2, and other systems
- Mounting screws

The internal drive can be converted to a 3.5" form factor for use in some rack-optimized servers as described below in Supported Servers.

The part numbers for the IBM RDX External USB Bundle include the following items:

- One external carrier/dock (drive)
- One cartridge (either 160 GB, 320 GB, or 500 GB capacity)
- Documentation CD
- Software CD
- AC adapter (12 output; 100-240 V, 50-60 Hz input)
- 3 m external USB cable

The part numbers for the IBM RDX cartridges include the following item:

- One cartridge (either 160 GB, 320 GB, or 500 GB capacity)

Figure 2 shows the three available cartridge sizes.

Figure 2. IBM RDX cartridges

Features

The IBM RDX drives have the following features:

- Affordable capacity: 160 GB, 320 GB, and 500 GB disk cartridges.
- Simplicity: With only the native OS, RDX provides random access to data and the convenience of drag-and-drop functionality through persistent drive letter access. It can also be addressed like traditional removable tape media, when used in conjunction with any of the supported backup applications.
- Flexibility: Internal and external RDX installation alternatives.
- Plug-and-Play connectivity: USB 2.0 interface for increased ease of use.
- Inexpensive performance: USB sustained transfer rate of up to 25 MBps.
- Portability and durability: RDX disk cartridges are shock-resistant, rugged, and removable for safely transporting offsite. Each is ruggedized to withstand a drop from up to 0.9 meters (36 in.) without damage.
- Investment protection: Carrier will support next generation capacities of cartridges.
- Effortless ordering: Internal and external single-cartridge bundles by capacity; additional cartridges can be ordered separately.
- Includes Yosemite Backup Basic with Disaster Recovery, a powerful and intuitive backup application.
- Secure: Cartridges can be password protected and software encrypted for extra security.

Specifications

The IBM RDX drives have the following specifications:

- Up to 25 MBps native USB transfer rate
- Up to 500 GB native capacity
- Standard Yosemite Backup Basic with DR for IBM RDX application

- Hot-plug capability
- 5.25-inch Internal form factor, convertible to 3.5-inch form factor in certain configurations
- External USB stand-alone offering or internal docks can be used with external enclosure

Physical specifications

IBM RDX Internal USB drive:

- Height: 41 mm (1.6 in)
- Width: 146 mm (5.75 in)
- Depth: 172 mm (6.8 in) - including bezel
- Weight: 635 g (1 lb 6 oz)

IBM RDX External USB drive:

- Height: 52 mm (2.0 in)
- Width: 110 mm (4.3 in)
- Depth: 177 mm (7.0 in) - including bezel
- Weight: 540 g (1 lb 3 oz)

IBM RDX cartridge:

- Height: 24 mm (0.9 in)
- Width: 87 mm (3.4 in)
- Depth: 119 mm (4.7 in)
- Weight: 173 g (6.0 oz)

Operating environment

The IBM RDX drives are supported in this environment:

- Temperature:
  - Operating: 10° to 40°C (50° to 104°F)
  - Non-operating: -40° to 65°C (-40° to 149°F)
- Relative humidity:
  - Operating: 20% to 80% (non-condensing)
  - Non-operating: 10% to 90% (non-condensing)

Warranty

Warranty on the IBM RDX Internal Dock: 1-year customer-replaceable unit (CRU) limited warranty, or when installed in an IBM System x server or IBM external tape enclosure the internal dock would assume your system's or enclosures' base warranty and any ServicePac upgrade.

Warranty on the IBM RDX External Dock: Three year, customer-replaceable unit (CRU) limited warranty.

Warranty on the IBM RDX cartridges: RDX cartridges come standard with a 1-year limited warranty, or assume your IBM System x server, IBM external Tape enclosures, or IBM external RDX docks base warranty and warranty ServicePac upgrades during the base warranty period. RDX cartridges are not covered under post warranty maintenance contracts.

Supported servers

The IBM RDX Internal and External Docks are supported in the IBM System x servers listed in Table 2.

Table 2. Supported System x servers (Part 1)

Adapter	x3100 M3	x3200 M2	x3200 M3	x3250 M2	x3250 M3	x3350	x3400	x3400 M2	x3400 M3	x3455	x3500	x3500 M2	x3500 M3	x3550
IBM RDX External Dock	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
IBM RDX Internal Dock in an external enclosure (see Table 4)	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
IBM RDX Internal Dock installed internally in the server (see Table 3)	N	Y	Y	N	N	N	Y	Y	Y	N	Y	Y	Y	N

Table 2. Supported System x servers (Part 2)

Adapter	x3550 M2	x3550 M3	x3620 M3	x3630 M3	x3650	x3650 T	x3650 M2	x3650 M3	x3655	x3690 X5	x3755	x3755 M3	x3850 M2	x3950 M2	x3850 X5	BladeCenter S
IBM RDX External Dock	Y	Y	N	Y	Y	N	Y	Y	Y	Y	N	Y	Y	Y	N	Y*
IBM RDX Internal Dock in an external enclosure (see Table 4)	Y	Y	Y	N	Y	N	Y	Y	Y	N	N	Y	Y	Y	N	Y*
IBM RDX Internal Dock installed internally in the server (see Table 3)	N	N	Y†	N	Y†	N	Y†	Y†	Y†	N	N	N	N	N	N	N

* Connectivity to the BladeCenter S chassis is via the USB port in the media tray on the front of the chassis.
† To use the drive internally in these servers, the drive is converted to a 3.5-inch form factor, as described in the next section

See IBM ServerProven for the latest information about the devices supported by each System x server type. Either view by server or select the **Tape backup units** link:
http://ibm.com/servers/eserver/serverproven/compat/us/

Internal installation

The IBM RDX Internal Dock can be installed internally in specific servers as listed in Table 2. Except where noted, the Internal Dock is installed in its standard 5.25-inch form factor.

As listed with a † symbol in Table 2, various servers support the Internal Dock mounted internally with the addition of a 3.5-inch enablement kit. Table 2 also lists the servers in which each enablement kit is supported.

Table 3. The 3.5-inch enablement kits for use with the IBM RDX Internal Dock when installed internally in the server

Description	Part number	Feature code	x3620 M3	x3650	x3650 M2	x3650 M3	x3655
IBM DDS Tape Enablement Kit	43V5959	5387 or 4873	N	Y	N	N	Y*
IBM System x3650 M2 RDX-DDS Tape Enablement Kit	49Y9883	7551	N	N	Y	N	N
Tape Enablement Kit option for IBM System x3650 M3	59Y3806	1746	N	N	N	Y	N
IBM x3620 M3 Tape Enablement Kit	69Y0798	6419	Y	N	N	N	N

* The installation of IBM DDS Tape Enablement Kit in an x3655 is in the field only. Installation is not available as a factory installation (CTO) option.

External use

The IBM RDX External Dock is designed to be used externally connected to the server or BladeCenter S chassis as listed in Table 2. The IBM RDX Internal Dock can also be used externally connected to supported servers (see Table 2) when installed inside one of the following enclosures and as listed in Table 4:

- IBM 1U Rackmount Tape Enclosure
- IBM 4U Rackmount Tape Enclosure (now withdrawn)
- IBM Half High Tabletop Tape Enclosure

Note: Each of these enclosures also requires an IBM USB Enclosure Adapter Kit, 44E8869, to route the USB cabling from the tape drive to the rear of the enclosure. The IBM USB Enclosure Adapter Kit includes the following components:

- USB adapter/connector
- One 3 m (12 ft) USB cable
- One 25 cm (1 ft) USB cable

Table 4. External enclosures for use with the IBM RDX Internal Dock

Description	Part number	Feature code
IBM 1U Rackmount Tape Enclosure	87651UX (AG)* 87651NX (AP and EMEA)†	8765HC1 fc 2290
IBM 4U Rackmount Tape Enclosure (withdrawn)	87664UX (AG)* 87664NX (AP and EMEA)†	Not available (product is withdrawn)
IBM Half High Tabletop Tape Enclosure	8767HHX (AG)* 87671NX (AP and EMEA)†	8767HC1 fc 2287
IBM USB Enclosure Adapter Kit‡	44E8869	5396

* These models are for customers in the Americas Group (AG - Canada, U.S., and countries in South America). These models ship with a NEMA 5-15P line cord.
† These models are for customers in the countries known collectively as Asia Pacific (AP) and Europe, Middle East, Africa (EMEA). These models do not ship with a line cord.
‡ See the above note.

Popular configurations

This section illustrates how the IBM RDX USB Drives can be used in configurations.

External USB drive

Figure 2 shows the IBM RDX External USB Drive connected to a supported System x server.

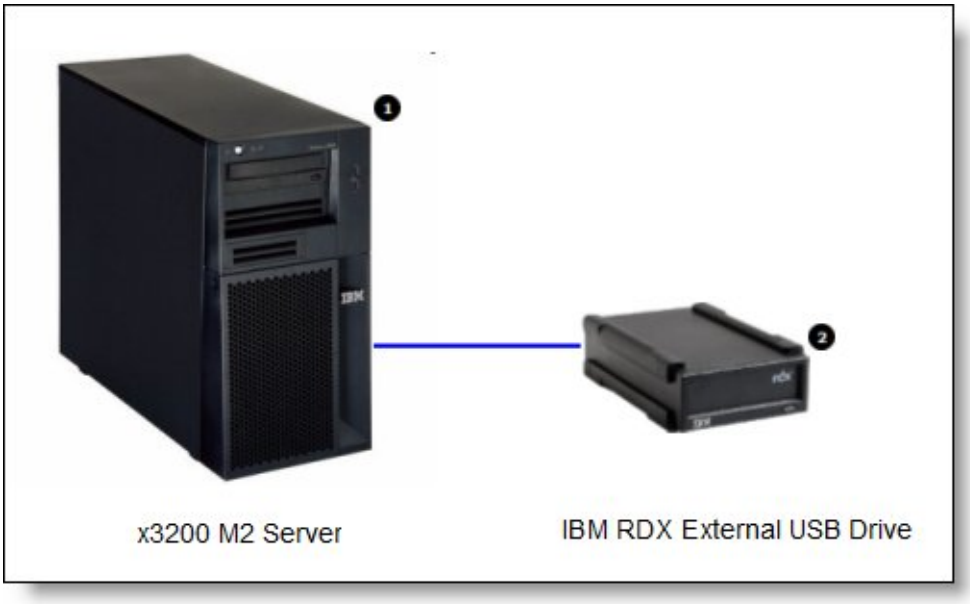


Figure 2. The IBM RDX External USB Drive connected to an x3200 M2 server

The parts used are listed in Table 3.

Table 3. Components used when connecting IBM RDX External USB Drive to an x3200 M2 server (as shown in Figure 2)

Diagram reference	Part number/machine type	Description	Quantity
1	Varies	x3200 M2 (or other supported server)	1
2	362516X or 362532X or 362550X	IBM RDX External USB Drive (includes USB cable)	1

Internal USB drive

Figure 3 shows the IBM RDX Internal USB Drive installed in an IBM 1U Tape Drive External Enclosure and connected to an x3550 M2 server.

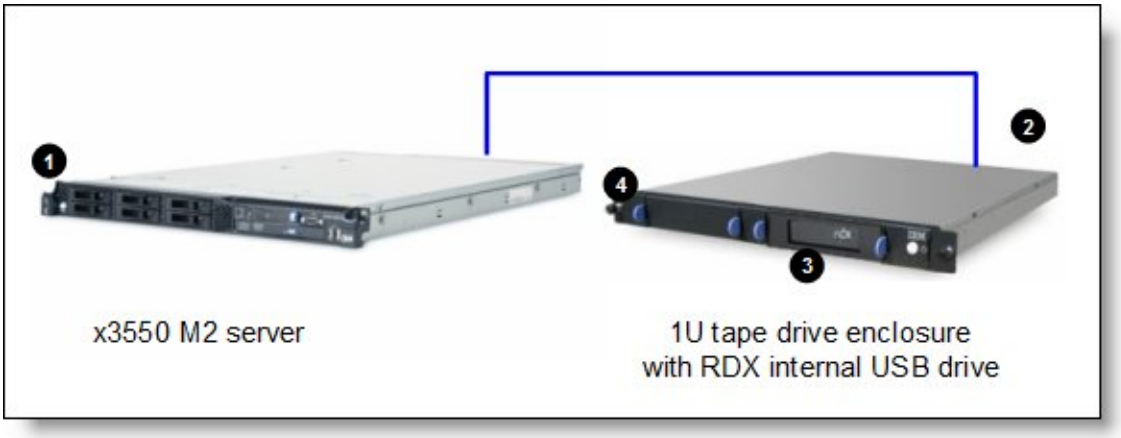


Figure 3. The IBM RDX Internal USB Drive installed in an IBM 1U Tape Drive External Enclosure and connected to an x3550 M2 server

The parts used are listed in Table 4.

Table 4. Components used when connecting RDX Internal USB Drive installed in External Tape Drive Enclosure to an x3550 M2 server (as shown in Figure 3)

Diagram reference	Part number/machine type	Description	Quantity
1	Varies	x3550 M2 or other supported server	1
2	44E8869	USB Enclosure Adapter Kit	1 per drive
3	46C5364 or 46C5387 or 46C5388	IBM RDX Internal USB Drive	1
4	87651UX or 87651NX	IBM 1U Tape Drive External Enclosure	1

Supported software products

The IBM RDX USB Drive supports the following software products:

- Symantec Backup Exec
- CA ArcServe
- Yosemite Backup

Yosemite Backup Basic with DR

The IBM RDX USB removable disk back-up solution includes Yosemite Backup Basic with DR (disaster recovery).

The Yosemite Backup Basic with DR for the IBM RDX application provides a powerful, intuitive wizard-based management approach to backup and recovery, as shown in Figure 4. This enables you to effortlessly back up and restore all of your data quickly.

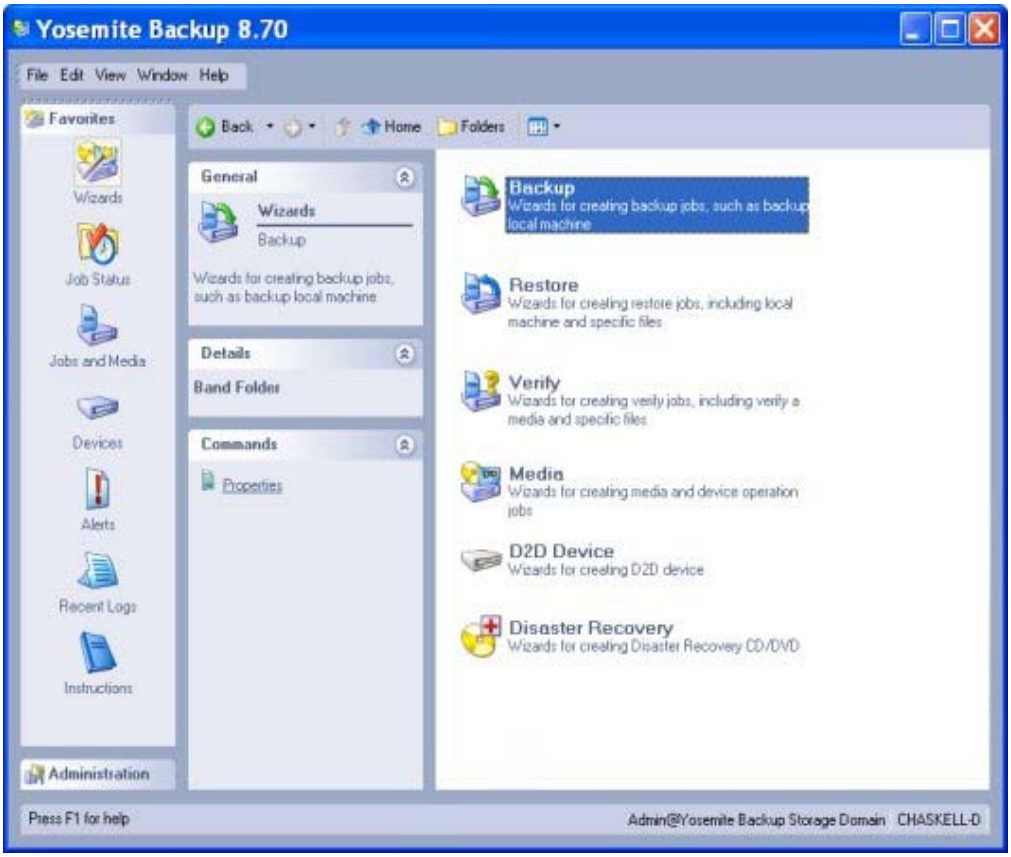
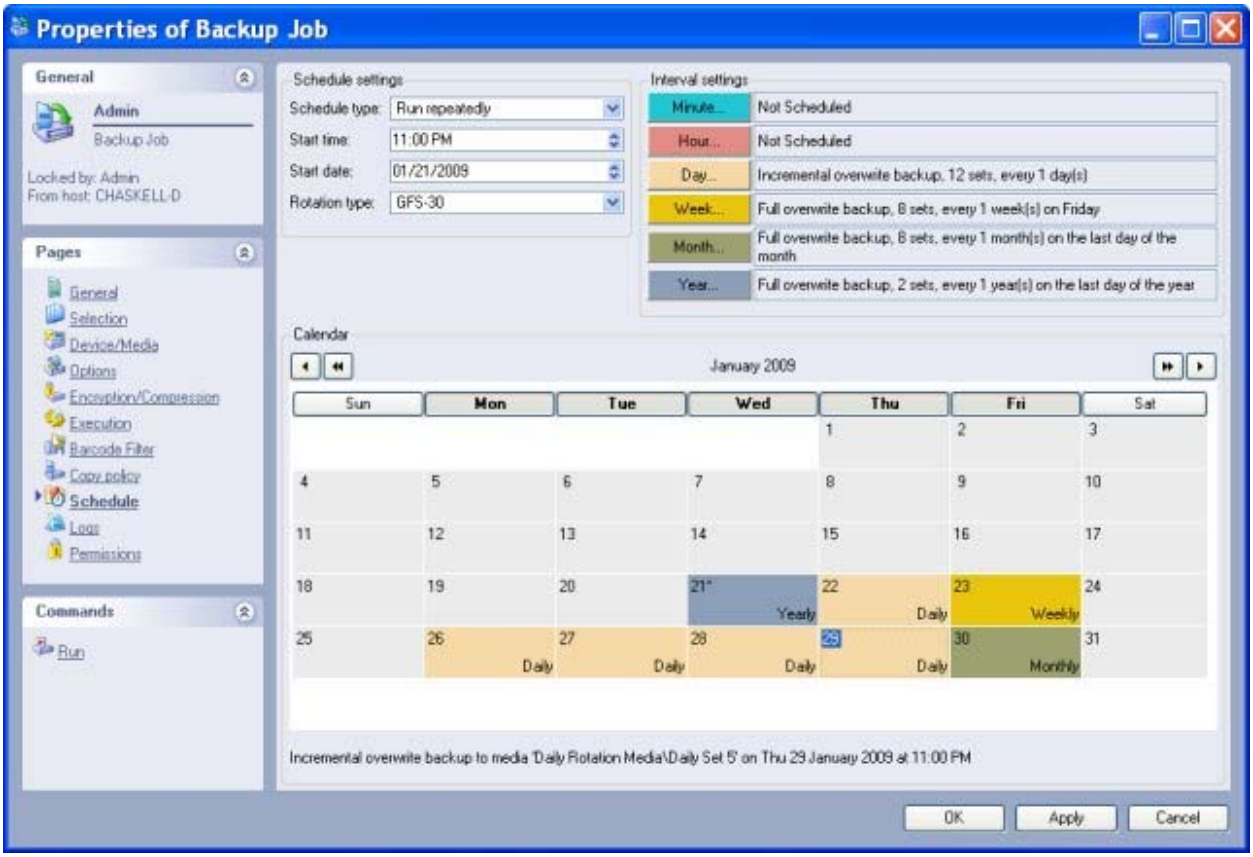
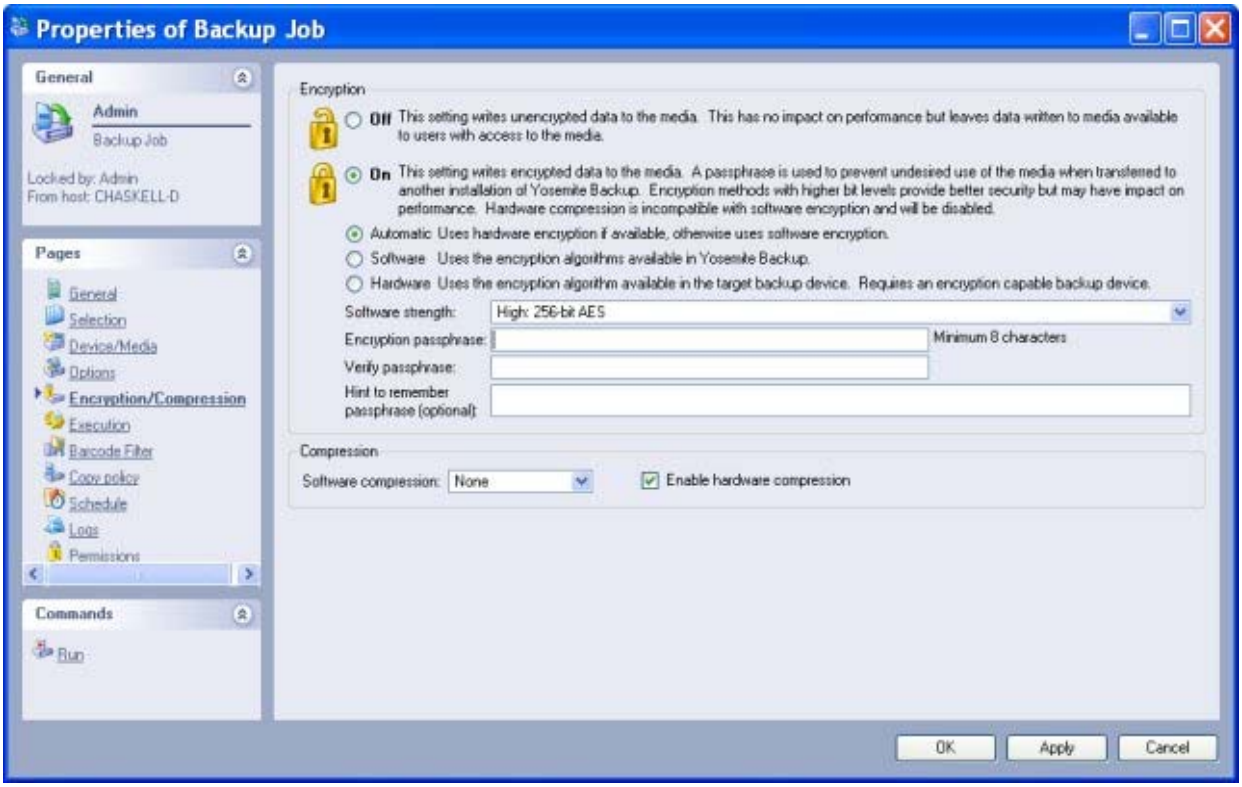


Figure 4. Yosemite Backup - wizards

Yosemite Backup Basic with DR makes scheduling backups easy through a simple calendar interface, as shown in Figure 5. For RDX, Yosemite Backup can automate and guide your cartridge rotation strategy. Automated email notifications can keep you informed of your backup completions or any problems encountered during backup operations.


Properties of Backup Job
General
Admin
Backup Job
Locked by: Admin
From host: CHASKELL-D
Pages
General
Selection
Device/Media
Options
Encryption/Compression
Execution
Barcode Filter
Copy policy
Schedule
Logs
Permissions
Commands
Run
Schedule settings
Schedule type: Run repeatedly
Start time: 11:00 PM
Start date: 01/21/2009
Rotation type: GFS-30
Interval settings
Minute... Not Scheduled
Hour... Not Scheduled
Day... Incremental overwrite backup, 12 sets, every 1 day(s)
Week... Full overwrite backup, 8 sets, every 1 week(s) on Friday
Month... Full overwrite backup, 8 sets, every 1 month(s) on the last day of the month
Year... Full overwrite backup, 2 sets, every 1 year(s) on the last day of the year
Calendar
January 2009
Sun Mon Tue Wed Thu Fri Sat
1 2 3
4 5 6 7 8 9 10
11 12 13 14 15 16 17
18 19 20 21* Yearly 22 Daily 23 Weekly 24
25 26 Daily 27 Daily 28 Daily 29 Daily 30 Monthly 31
Incremental overwrite backup to media 'Daily Rotation Media\Daily Set 5' on Thu 29 January 2009 at 11:00 PM
OK
Apply
Cancel
Figure 5. Yosemite Backup - scheduling properties of a backup job

The advanced data encryption feature (Figure 6) helps safeguard against costly security breaches and exposure of proprietary data if a cartridge is stolen or lost. Yosemite Backup Basic with DR also provides software data compression to get the most efficient use of your RDX media.


Properties of Backup Job
General
Admin
Backup Job
Locked by: Admin
From host: CHASKELL-D
Pages
General
Selection
Device/Media
Options
Encryption/Compression
Execution
Barcode Filter
Copy policy
Schedule
Logs
Permissions
Commands
Run
Encryption
Off This setting writes unencrypted data to the media. This has no impact on performance but leaves data written to media available to users with access to the media.
On This setting writes encrypted data to the media. A passphrase is used to prevent undesired use of the media when transferred to another installation of Yosemite Backup. Encryption methods with higher bit levels provide better security but may have impact on performance. Hardware compression is incompatible with software encryption and will be disabled.
Automatic Uses hardware encryption if available, otherwise uses software encryption.
Software Uses the encryption algorithms available in Yosemite Backup.
Hardware Uses the encryption algorithm available in the target backup device. Requires an encryption capable backup device.
Software strength:
High: 256-bit AES
Encryption passphrase:
Minimum 8 characters
Verify passphrase:
Hint to remember passphrase (optional)
Compression
Software compression:
None
Enable hardware compression
OK
Apply
Cancel
Figure 6. Yosemite Backup - encryption properties of a backup job

Supported operating systems

The IBM RDX USB Drive and Yosemite Backup software support the following operating systems:

- SUSE Linux
- Red Hat Linux
- Microsoft Windows Server 2003
- Microsoft Windows Server 2008

Related publications

For more information, refer to these documents:

- IBM RDX Removable Disk overview and data sheet
  http://www.ibm.com/systems/storage/tape/rdx
- IBM RDX Removable Disk specification
  http://www.ibm.com/systems/storage/tape/rdx/specifications.html
- IBM RDX Removable Disk User's Guide
  http://www.ibm.com/support/docview.wss?uid=psg1MIGR-5079206
- Installation Guide for IBM 1U Rackmount Tape Enclosure
  http://www.ibm.com/support/docview.wss?uid=psg1MIGR-64787
- Installation Guide for DDS Tape Enablement Kit
  http://www.ibm.com/support/docview.wss?uid=psg1MIGR-5072866
- IBM US Announcement Letter
  http://ibm.com/common/ssi/cgi-bin/ssialias?infotype=dd&subtype=ca&&htmlfid=897/ENUS109-008

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